

What They Do

Manufacturing Research Associates work in the production, packaging, and distribution sections of a biotechnology firm. They observe the production line, making sure it runs according to the designed plan, and make adjustments in steps or equipment in order to improve the process. These workers work as part of a team. They use cleanroom process equipment such as chromatographs, centrifuges, fermentors and bioreactors. They also maintain production line equipment such as packaging machines.

These workers are responsible for keeping records of their activities and findings. They must keep regulatory guidelines in mind during the course of their work.

*Manufacturing Research Associates in the biotech industry combine characteristics of Industrial Engineers, Chemists, Microbiologists, and Biochemists. Detailed descriptions of these occupations are found in the Occupational Information Network (O*NET) at online.onetcenter.org.*

Important skills, knowledge, and abilities include:

- ▶ Production and Processing – Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.
- ▶ Chemistry – Knowledge of the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo.
- ▶ Reading Comprehension – Understanding written sentences and paragraphs in work related documents.
- ▶ Engineering and Technology – Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.
- ▶ Active Learning – Understanding the implications of new information for both current and future problem solving and decision-making.
- ▶ Problem Sensitivity – The ability to tell when something is wrong or is likely to go wrong.
- ▶ Oral Comprehension – The ability to listen to and understand information and ideas presented through spoken words and sentences.

Training/Requirements

- ▶ Bachelor or master's degree in engineering, life sciences, or another scientific discipline.
- ▶ Up to two years of experience in a manufacturing environment.

Manufacturing Research Associates

Biotechnology Careers

What's the California Job Outlook?

While the Bureau of Labor Statistics does not collect data on Manufacturing Research Associates, the occupations below are found in the biotechnology industry and have similar duties. The California outlook and wage figures are drawn from all industries and represent occupations comparable to Manufacturing Research Associates.

Standard Occupational Classification	Estimated Number of Workers 2002	Estimated Number of Workers 2012	Average Annual Openings	2005 Wage Range (per hour)
Industrial Engineers				
17-2112	18,600	20,800	670	\$30.00 to \$44.98
Chemists				
19-2031	10,300	12,700	580	\$20.51 to \$37.71
Microbiologists				
19-1022	1,600	2,200	110	\$22.58 to \$37.74
Biochemists and Biophysicists				
19-1021	2,700	3,700	190	\$23.14 to \$42.55

These figures do not include self-employment.

Source: www.labormarketinfo.ca.gov, *Employment Projections by Occupation and OES Employment & Wages by Occupation*, Labor Market Information Division, Employment Development Department.

Additional Sources of Information

Institute of Industrial Engineers
(800) 494-0460
www.iienet.org

Occupational Information Network (O*NET)
<http://online.onetcenter.org/>